epiTRENDS

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A Primer on Pertussis ~
Outbreaks in Health Care Facilities Require Prompt Measures

During January and February, health care facilities in four Washington counties reported suspected cases of pertussis among staff. Thousands of health care workers and patients received antibiotic prophylaxis, as did family members, child care attendees, and other close contacts.

Pertussis is a bacterial respiratory infection endemic in Washington at rates somewhat higher than occurs in most of the United States. Incidence typically increases during winter months. Annual rates in Washington varied considerably during the past decade, ranging from 1.8/100,000 (96 cases) in 1993 to 15/100,000 (830 cases) in 1996.

Symptoms and Diagnosis

In children, pertussis initially manifests as a catarrhal phase resembling a mild upper respiratory infection that progresses to paroxysms of cough, often followed by a whoop, vomiting, or apnea. Adults may have milder symptoms. Complications are most severe for young children; pertussis-related infant deaths were reported in 1996, 1998, and 2000.

Diagnosis is by culture, accompanied when available by PCR (polymerase chain reaction) testing. Clinicians can use a separate Dacron swab to obtain a nasopharyngeal sample for PCR testing (leave the swab in place for 10 seconds, if possible). A throat or anterior nasopharyngeal swab does not give an adequate specimen for culture or PCR. Direct fluorescent antibody (DFA) testing gives both false-positive and false-negative results. Serologic testing for pertussis has not been standardized, and should not be relied on for diagnosis.

Transmission and Control

Pertussis vaccine or infection provides only temporary immunity. No pertussis vaccine is licensed for use in children older than six years. Adolescents and adults are generally susceptible and, if infected, may transmit pertussis to children, particularly if their illness is mistaken for bronchitis and not properly controlled or treated.

During the initial phase of infection and the first three weeks of cough, transmission occurs through airborne droplets. Patients are no longer infectious after at least five days of antibiotic treatment. Close contacts should receive antibiotic prophylaxis regardless of immunization status. Antibiotics recommended for prophylaxis are erythromycin or trimethoprim-sulfamethoxazole.

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Federal Study Prompts New Look at HIV Case Reporting

Washington State is one of eight sites receiving federal funding to assess the implementation of HIV case reporting. The study, directed by the Institute of Medicine, will address three issues: (1) whether HIV surveillance systems provide adequate and reliable information on numbers of cases and their demographic characteristics; (2) whether the information is accurate enough to include in funding formulas; and (3) recommendations for sites that do not provide accurate or reliable information on cases of HIV infection.

Studies examining the use of data for planning, evaluation, and resource allocation are necessary because medical therapies have slowed the progression of HIV infection to AIDS conditions, and thus have decreased the usefulness of current resource allocation

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HIV Case Reporting *(from page 1)*

formulas. Since 1990, the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act has funded medical treatment and support services for people with HIV disease who are uninsured or underinsured. Resource distribution to state and local agencies is based on a formula that considers the number of people diag-nosed with AIDS in a geographic area. However, the advent of highly effective antiretroviral therapies in the mid-1990s and the consequent decline in the development of AIDS-defining conditions means the dis-tribution formula is less useful for planning services for people with HIV infection.

HIV Surveillance vs. AIDS Surveillance

Traditionally, long-term collection and analysis of AIDS data offered the opportunity to identify new patterns of disease morbidity and mortality related to HIV infection. These patterns were assumed to show gross trends, though delayed, in HIV transmission. However, current studies indicate that new treatment regimens have altered the natural history of HIV infection by delaying progression to AIDS. Consequently, reports of AIDS cases and deaths have decreased. When AIDS reporting is used to describe the epidemic, morbidity due to HIV appears to be declining. However, we have no evidence that HIV incidence has declined in recent years.

In the past, only AIDS and symptomatic HIV infection have been reportable conditions in Washington State, so only those with severe immunocompromise and/or any one of a list of clinical conditions were counted (Table 1). As of December 31, 2001, the Department of Health had received reports of 9,921 AIDS cases. Under the new reporting require-ment, end-of-year data for 2001 also included 2,952 cases of HIV infection that has not yet progressed to AIDS.

TABLE 1: Categories of HIV and AIDS infection

	Category A	Category B	Category C
CD4 Count*	Asymptomatic Acute HIV	Symptomatic non-AIDS	Symptomatic AIDS
500+	A1	B1	C1
200–499	A2	B2	C2
<200	A3	B3	C3

Table Notes:
*CD4+ T-lymphocyte cells (counts are per μL of blood) are the primary target for HIV infection. Loss of these cells progressively impairs the immune response.

A, B, and C are clinical categories and 1,2,3 are immunologic categories. The combination guides clinical management and surveillance. Initially, only category C cases were reportable. In 1993, CDC expanded the AIDS case definition to include people with severe immunocompromise (CD4 counts < 200).

Legislation reauthorizing the CARE Act in 2000 directed the Institute of Medicine (IOM) to examine the use of data for resource allocation, planning, and evaluation. The study, sponsored by the Health Resources and Services Administration (HRSA) and the Centers for Disease Control and Prevention (CDC), assesses three areas: (1) the implementation of HIV case reporting; (2) the data available and needed to determine a community's severity of need; and (3) the availability and utility of health outcome measures and data for measuring the quality of funded services.

Some of the eight funded study sites use name-based reporting systems and others conduct HIV reporting via unique identifiers. Washington State is the only site with a hybrid HIV reporting system that includes reporting by name with subsequent conversion to a unique identifier.

The criteria for evaluating the surveillance systems include: timeliness, accuracy, completeness of ascertainment of mode of transmission, completeness of reporting, validity and reliability of the data, the ability to match with other public health databases, identification and follow-up of cases of public health importance, and the use of surveillance data for public health planning. The revised HIV reporting rule adopted by the Washington State Board of Health in 1999 required the Department of Health to conduct a similar evaluation of the surveillance system and present the results in September 2000. This early evaluation indicated that the system met CDC performance standards in all areas but completeness of case reporting (61% completeness vs. the CDC standard of greater than or equal to 85%), an expected result given the early stage of implementation.

As of December 31, 2001, the surveillance system had received reports of 2,952 cases of HIV infection that had not yet progressed to AIDS. HIV data have been incorporated into planning processes and funding formulas in Washington State.

For More Information

To receive the monthly HIV/AIDS surveillance report, please contact the DOH Infectious Disease and Reproductive Health Assessment Unit at (360) 236-3455. The IOM expects to publish the study results in October 2003.

Monthly Surveillance Data by County

February 2002* – Washington State Department of Health

County	E. coli O157:H7	Salmonella	Shigella	Hepatitis A	Hepatitis B	Non-A, Non-B Hepatitis	Meningococcal Disease	Pertussis	Tuberculosis	Chlamydia	Gonorrhea	AIDS	Pesticides†	Lead§#
Adams	0	0	0	0	0	0	0	0	0	1	0	0	0	0/22
Asotin	0	0	0	0	0	0	0	0	0	5	0	0	0	0/0
Benton	0	1	0	0	0	0	0	0	0	17	0	1	0	0/0
Chelan	0	0	0	0	0	0	0	0	0	12	0	0	0	0/12
Clallam	0	0	0	0	0	0	0	0	0	15	0	0	0	0/#
Clark	0	0	0	0	0	0	1	1	0	42	10	4	0	0/0
Columbia	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Cowlitz	0	0	0	0	0	0	0	2	0	6	1	0	0	0/42
Douglas	0	0	0	0	0	0	0	0	0	4	0	0	0	0/0
Ferry	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Franklin	0	0	0	0	0	0	0	0	0	16	1	0	0	0/0
Garfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Grant	0	0	0	0	0	0	1	0	1	14	1	0	0	1/13
Grays Harbor	0	0	0	0	0	0	0	0	0	0	0	0	0	0/#
Island	0	0	0	0	0	0	0	0	0	9	0	0	0	0/#
Jefferson	0	0	0	0	0	0	0	0	0	1	0	1	0	0/#
King	0	7	4	3	0	1	2	3	3	378	139	12	1	1/53
Kitsap	0	0	0	0	0	0	0	0	1	40	9	2	1	0/5
Kittitas	0	0	0	0	0	0	0	0	0	11	0	0	0	0/#
Klickitat	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Lewis	0	0	0	0	0	0	0	0	0	15	0	0	0	0/#
Lincoln	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Mason	0	0	0	0	0	0	0	0	0	16	1	0	0	0/#
Okanogan	0	0	0	0	0	0	0	0	0	12	0	0	0	0/#
Pacific	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Pend Oreille	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Pierce	1	2	0	2	2	0	0	16	2	223	54	2	2	1/23
San Juan	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Skagit	0	0	0	0	0	0	0	0	0	23	6	0	0	0/0
Skamania	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Snohomish	0	2	0	0	0	0	0	0	2	101	21	5	0	0/9
Spokane	0	3	1	0	3	1	0	0	1	111	20	0	0	2/29
Stevens	0	1	0	0	0	0	0	0	0	3	0	0	0	0/0
Thurston	0	0	0	1	0	0	0	0	1	19	0	0	1	0/#
Wahkiakum	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Walla Walla	0	0	0	0	0	0	0	0	0	7	1	1	0	3/29
Whatcom	0	1	0	0	0	0	0	0	1	47	1	0	0	0/7
Whitman	0	0	0	0	0	0	0	0	0	8	1	0	0	0/#
Yakima	0	0	0	0	0	0	0	0	0	75	2	1	1	0/18
Unknown														0/0
Current Month	1	17	5	6	5	2	4	22	12	1236	268	29	6	8/277
February 2001	1	23	23	8	8	2	15	5	9	917	194	64	1	10/441
2002 to date	4	22	5	10	5	2	10	25	27	2374	534	77	11	10/532
2001 to date	3	28	34	9	11	2	18	8	25	2216	502	114	4	21/758

* Data are provisional based on reports received as of February 28, unless otherwise noted.
† Unconfirmed reports of illness associated with pesticide exposure.
§# Number of elevated tests (data include unconfirmed reports) / total tests performed (not number of children tested); number of tests per county indicates county of health care provider, not county of residence for children tested; # means fewer than 5 tests performed, number omitted for confidentiality reasons.

WWW Access Tips

Guidelines for the Control of Pertussis Outbreaks. Atlanta, GA, 2000: Centers for Disease Control and Prevention: Available online at: http://www.cdc.gov/nip/publications/pertussis/guide.htm

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http://www.doh.wa.gov/Publicat/EpiTrends/01-02_EpiTrends/2002_trend.htm

Pertussis *(from page 1)*

Azithromycin and clarithromycin also may be effective. Pertussis is almost uniformly sensitive to erythromycin, so susceptibility testing is not recommended.

Infection in Health Care Facilities

Visitors, patients, or health care workers can introduce pertussis into a health care facility. Nosocomial transmission of pertussis creates a particular risk for infants or children with compromised health status. Disruption and costs may be high for a facility responding to a pertussis outbreak.

Control of pertussis within health care facilities involves identifying cases and exposed contacts, and appropriate infection control. Health care workers should wear respiratory masks for close contact with patients with confirmed or suspected pertussis, and patients should be placed on droplet precautions to control respiratory secretions and prevent airborne transmission until they are no longer infectious. Staff should be considered exposed if they are not wearing appropriate respiratory protection while in close contact with an infectious patient. Close contact includes tasks such as physical examination, intubation, feeding, and bathing. Patient exposures include being cared for by an infected health care worker or sharing a room or living space with an infected patient. The risk for transmission is usually very low in outpatient settings such as waiting rooms and clinics, but staff exposed to respiratory secretions or others who had extensive close contact with an infectious person (e.g., extended interaction with an infectious child in a playroom) may be considered close contacts.

Symptomatic health care workers or patients in an outbreak setting (or known to be exposed to pertussis) should be tested by culture and, if available, PCR, and treated as soon as possible. Symptomatic health care workers should be excluded from work, and patients placed on droplet precautions, until pertussis is ruled out or they have received at least five days of antibiotic treatment.

Exposed health care workers and patients should receive prophylaxis. In addition, despite the current shortage of DTaP vaccine, children who are exposed and have received fewer than four doses of pertussis vaccine should be immunized as follows: younger than 7 years of age, initiate or complete the primary DTaP series, including the fourth dose and subsequent booster doses, according to the recommended schedule. Children who received their third dose less than six months before exposure should be given a fourth dose at this time. Children who have had four doses of DTaP should receive a booster dose unless a dose has been given within the last three years, or they are younger than 7 years of age

Additional outbreak control measures may include restriction of visitors from high-risk units, or screening and restricting visitors with respiratory symptoms. Please consult with your local health department, or DOH Communicable Disease Epidemiology, when a suspected or confirmed case of pertussis occurs in a health care facility.

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